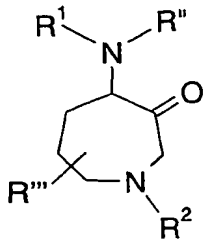
We claim:

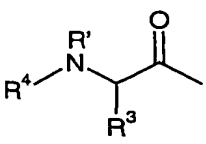
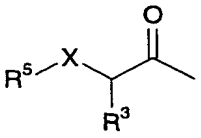
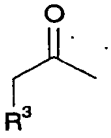
1. A method of inhibiting cathepsin S, comprising administering to a patient in need thereof an effective amount of a compound of Formula I:

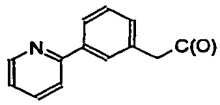
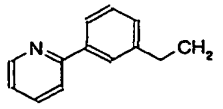
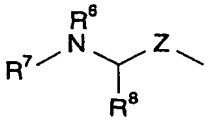


I

wherein:

R^1 is selected from the group consisting of:


; 
and 
;

R^2 is selected from the group consisting of: H, C_{1-6}alkyl, C_{3-6}cycloalkyl-C_{0-6}alkyl, Ar-C_{0-6}alkyl, Het-C_{0-6}alkyl, $R^9C(O)$-, $R^9C(S)$-, R^9SO_2-, $R^9OC(O)$-, $R^9R^{11}NC(O)$-, $R^9R^{11}NC(S)$-, $R^9(R^{11})NSO_2$-  ,  and 
;

R^3 is selected from the group consisting of: H, C_{1-6}alkyl, C_{3-6}cycloalkyl-C_{0-6}alkyl, C_{2-6}alkenyl, C_{2-6}alkynyl, HetC_{0-6}alkyl, ArC_{0-6}alkyl, Ar-ArC_{0-6}alkyl, Ar-HetC_{0-6}alkyl, Het-ArC_{0-6}alkyl, and Het-HetC_{0-6}alkyl;

R^3 and R' may be connected to form a pyrrolidine, piperidine or morpholine ring;

R^4 is selected from the group consisting of: H, C_{1-6}alkyl, C_{3-6}cycloalkyl-C_{0-6}alkyl, Ar-C_{0-6}alkyl, Het-C_{0-6}alkyl, $R^5C(O)$-, $R^5C(S)$-, R^5SO_2-, $R^5OC(O)$-, $R^5R^{13}NC(O)$-, and $R^5R^{13}NC(S)$-;

R^5 is selected from the group consisting of: H, C_{1-6}alkyl, C_{2-6}alkenyl, C_{2-6}alkynyl, C_{3-6}cycloalkyl-C_{0-6}alkyl, Ar-C_{0-6}alkyl and Het-C_{0-6}alkyl;

R^6 is selected from the group consisting of: H, C_{1-6}alkyl, C_{3-6}cycloalkyl-C_{0-6}alkyl, Ar-C_{0-6}alkyl, and Het-C_{0-6}alkyl;

R^7 is selected from the group consisting of: H, C_{1-6}alkyl, C_{3-6}cycloalkyl-C_{0-6}alkyl, Ar-C_{0-6}alkyl, Het-C_{0-6}alkyl, $R^{10}C(O)$-, $R^{10}C(S)$-, $R^{10}SO_2$-, $R^{10}OC(O)$-, $R^{10}R^{14}NC(O)$-, and $R^{10}R^{14}NC(S)$-;

R^8 is selected from the group consisting of: H, C_{1-6}alkyl, C_{2-6}alkenyl, C_{2-6}alkynyl, HetC_{0-6}alkyl and ArC_{0-6}alkyl;

R^9 is selected from the group consisting of: C_{1-6}alkyl, C_{3-6}cycloalkyl-C_{0-6}alkyl, Ar-C_{0-6}alkyl and Het-C_{0-6}alkyl;

R^{10} is selected from the group consisting of: C_{1-6}alkyl, C_{3-6}cycloalkyl-C_{0-6}alkyl, Ar-C_{0-6}alkyl and Het-C_{0-6}alkyl;

R^{11} is selected from the group consisting of: H, C_{1-6}alkyl, Ar-C_{0-6}alkyl, and Het-C_{0-6}alkyl;

R^{12} is selected from the group consisting of: H, C_{1-6}alkyl, Ar-C_{0-6}alkyl, and Het-C_{0-6}alkyl;

R^{13} is selected from the group consisting of: H, C_{1-6}alkyl, Ar-C_{0-6}alkyl, and Het-C_{0-6}alkyl;

R^{14} is selected from the group consisting of: H, C_{1-6}alkyl, Ar-C_{0-6}alkyl, and Het-C_{0-6}alkyl;

R' is selected from the group consisting of: H, C_{1-6}alkyl, Ar-C_{0-6}alkyl, and Het-C_{0-6}alkyl;

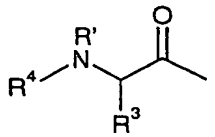
R" is selected from the group consisting of: H, C_{1-6}alkyl, Ar-C_{0-6}alkyl, or Het-C_{0-6}alkyl;

R"' is selected from the group consisting of: H, C_{1-6}alkyl, C_{3-6}cycloalkyl-C_{0-6}alkyl, Ar-C_{0-6}alkyl, and Het-C_{0-6}alkyl;

X is selected from the group consisting of: CH_2, S, and O;

Z is selected from the group consisting of: C(O) and CH_2;

and pharmaceutically acceptable salts, hydrates and solvates thereof.

2. A method according to Claim 1 wherein in said compound R^1 is 

3. A method according to Claim 2 wherein in said compound R^3 is C_{3-6}cycloalkyl-C_{0-6}alkyl.

4. A method according to Claim 3 wherein in said compound R^3 is cyclohexylmethyl.

5. A method according to Claim 2 wherein in said compound R^4 is $R^5C(O)$-.

6. A method according to Claim 5 wherein in said compound R^5 is selected from the group consisting of: C_{1-6}alkyl, C_{3-6}cycloalkyl-C_{0-6}alkyl, Ar-C_{0-6}alkyl and Het-C_{0-6}alkyl.

7. A method according to Claim 6 wherein in said compound R^5 is selected from the group consisting of:

furanyl;
benzofuranyl;
thiophenyl;
furo[3,2-b]-pyridine-2-yl;
thiazolyl;
phenyl;
cyclobutyl;
cyclopentyl;
tetrahydrofuranyl;
selenophenyl; and
thieno[3,2-b]thiophenyl.

8. A method according to Claim 6 wherein in said compound R^5 is selected from the group consisting of:

furan-2-yl and furan-3-yl;
benzofuran-2-yl;
thiophene-3-yl and thiophene-2-yl;
furo[3,2-b]-pyridine-2-yl;
thiazole-5-yl;
tetrahydrofuran-2-yl;
selenophene-2-yl; and
thieno[3,2-b]thiophene-2-yl.

9. A method according to Claim 6 wherein in said compound R^5 is selected from the group consisting of:

aryl substituted furanyl;

C_{1-6}alkoxy substituted benzofuranyl;

Het-C_{0-6}alkyl-thiophenyl, C_{1-6}alkyl-thiophenyl and C_{1-6}alkoxy-thiophenyl,

C_{1-6}alkyl-furo[3,2-b]-pyridine-2-yl,

Het-C_{0-6}alkyl-thiazolyl; and

halogen substituted phenyl.

10. A method according to Claim 6 wherein in said compound R^5 is selected from the group consisting of:

5-(3-trifluoromethyl-phenyl)-furan-2-yl and 5-(4-chloro-phenyl)-furan-2-yl;

5,6-dimethoxy-benzofuran-2-yl and 5-(2-morpholin-4-yl-ethoxy)benzofuran-2-yl;

5-pyridin-2-yl- thiophene-2-yl, 5-methyl-thiophene-2-yl, 3-methyl-thiophene-2-yl; and 3-ethoxy-thiophene-2-yl;

3-methyl-furo[3,2-b]-pyridine-2-yl;

4-methyl-2-pyridin-2-yl-thiazole-5-yl; and

4-bromophenyl.

11. A method according to Claim 1 wherein in said compound R' is H.

12. A method according to Claim 1 wherein in said compound R" is H.

13. A method according to Claim 1 wherein in said compound R"' is selected from the group consisting of: H and C_{1-6}alkyl.

14. A method according to Claim 1 wherein in said compound R" is H and R"' is selected from the group consisting of: H and C_{1-6}alkyl.

15. A method according to Claim 13 wherein in said compound R"' is H.

16. A method according to Claim 13 wherein in said compound R"' is C_{1-6}alkyl.

17. A compound according to Claim 16 wherein C_{1-6}alkyl is selected from the group consisting of: 5-, 6- and 7-C_{1-6}alkyl.

18. A compound according to Claim 17 wherein 5-, 6- and 7-C_{1-6}alkyl is selected from the group consisting of: 5-, 6- or 7- methyl, -ethyl, -propyl, -butyl, -pentyl, and -hexyl.

19. A compound according to Claim 21 wherein 5-, 6- and 7-C_{1-6}alkyl is selected from the group consisting of: 5-, 6- and 7-methyl.

20. A compound according to Claim 16 wherein C_{1-6}alkyl is selected from the group consisting of: 6- and 7-C_{1-6}alkyl.

21. A compound according to Claim 20 wherein 6- and 7-C_{1-6}alkyl is selected from the group consisting of: 6- or 7- methyl, -ethyl, -propyl, -butyl, -pentyl, and -hexyl.

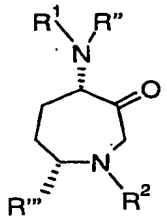
22. A compound according to Claim 21 wherein 6- and 7-C_{1-6}alkyl is selected from the group consisting of: 6- and 7-methyl.

23. A compound according to Claim 16 wherein C_{1-6}alkyl is 7-C_{1-6}alkyl.

24. A compound according to Claim 23 wherein 7-C_{1-6}alkyl is selected from the group consisting of: 7- methyl, -ethyl, -propyl, -butyl, -pentyl, and -hexyl.

25. A compound according to Claim 24 wherein 7-C_{1-6}alkyl is 7-methyl.

26. A compound according to Claim 16 of Formula Ia:



Ia

wherein R''' is *cis*-7-C_{1-6}alkyl.

27. A compound according to Claim 26 wherein R''' is *cis*-7-methyl.

28. A method according to Claim 1 wherein in said compound R^2 is R^9SO_2.

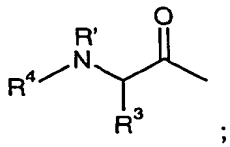
29. A method according to Claim 28 wherein in said compound R^9 is Het-C_{0-6}alkyl.

30. A method according to Claim 29 wherein Het-C_{0-6}alkyl is selected from the group consisting of: pyridinyl and 1-oxy-pyridinyl.

31. A method according to Claim 30 wherein R^9 is pyridin-2-yl.

32. A method according to Claim 1 wherein in said compound:

R^1 is



;

R^2 is R^9SO_2;

R^3 is C_{3-6}cycloalkyl-C_{0-6}alkyl;

R^4 is $R^5C(O)$;

R^5 is Het-C_{0-6}alkyl;

R^9 is Het-C_{0-6}alkyl;

R' is H

R" is H; and

R'" is C_{1-6}alkyl.

33. A method according to Claim 1 wherein in said compound:

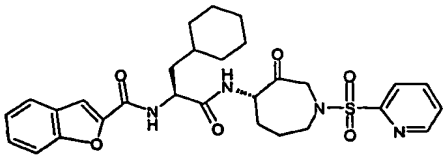
R^3 is cyclohexylmethyl;

R^5 is selected from the group consisting of: furan-2-yl and thiophene-3-yl;

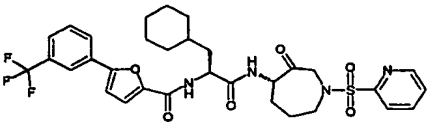
R^9 is pyridin-2-yl; and

R'" is 7- methyl.

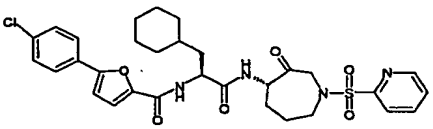
34. A method according to Claim 1 wherein said compound is selected from the group consisting of:



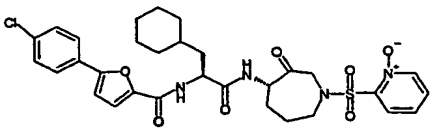
Benzofuran-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



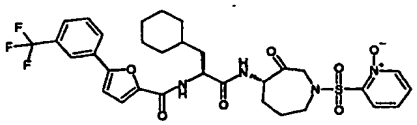
5-(3-Trifluoromethyl-phenyl)-furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



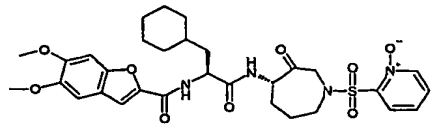
5-(4-Chloro-phenyl)-furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



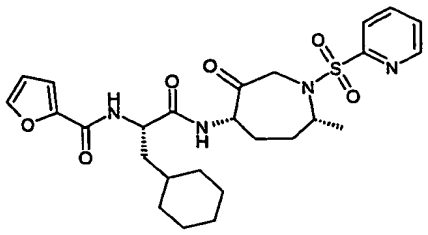
5-(4-Chloro-phenyl)-furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl) -azepan-4-ylcarbamoyl]-ethyl}-amide;



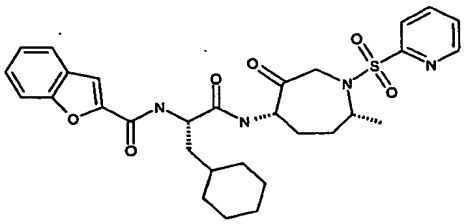
5-(3-Trifluoromethyl-phenyl)-furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



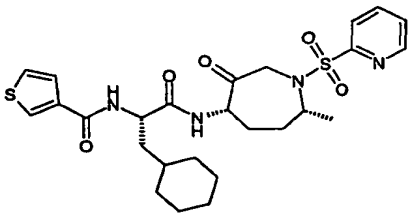
5,6-Dimethoxy-benzofuran-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide; and



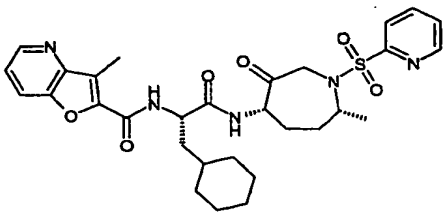
furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[(4S,7R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



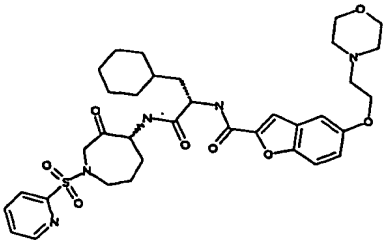
benzofuran-2-carboxylic acid {(S)-2-cyclohexyl-1-[(4S,7R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



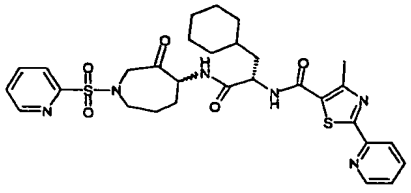
thiophene-3-carboxylic acid {(S)-2-cyclohexyl-1-[(4S,7R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



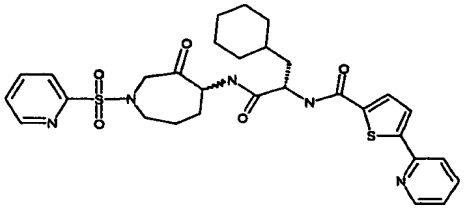
3-methyl-furo[3,2-b]- pyridine-2-carboxylic acid {(S)-2-cyclohexyl-1-[(4S,7R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



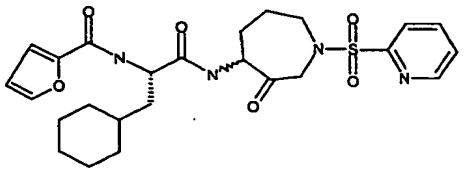
5-(2-morpholin-4-yl-ethoxy)-benzofuran-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



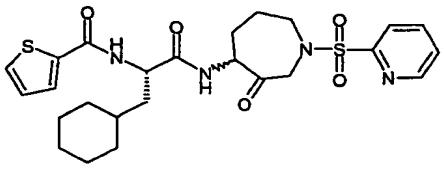
4-methyl-2-pyridin-2-yl-thiazole-5-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



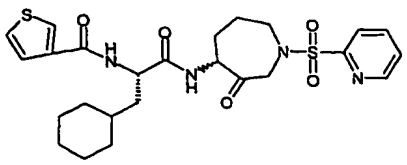
5-pyridin-2-yl-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



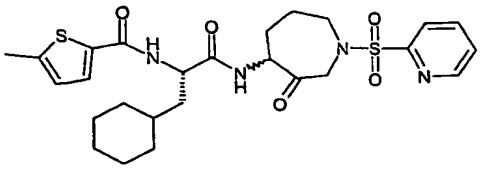
furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



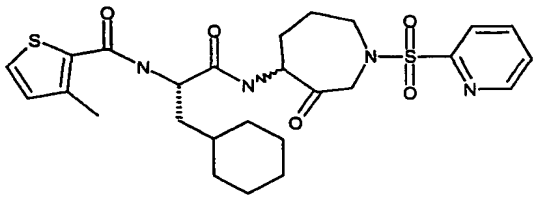
thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl] -ethyl}-amide;



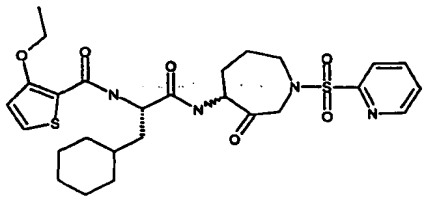
thiophene-3-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl] -ethyl}-amide;



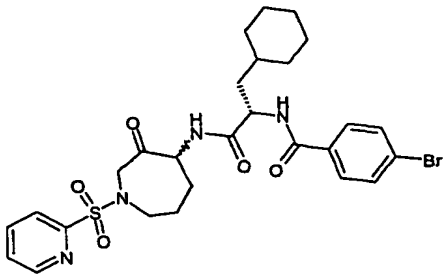
5-methyl-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



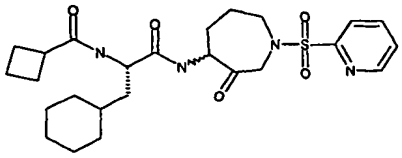
3-methyl-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



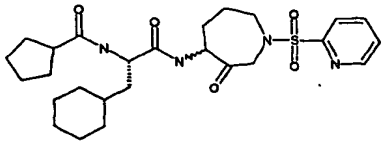
3-ethoxy-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



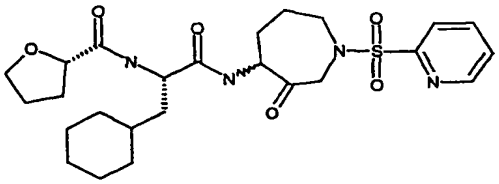
4-bromo-N-{(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-benzamide;



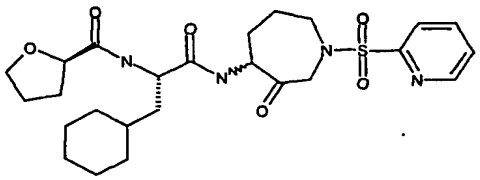
cyclobutanecarboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



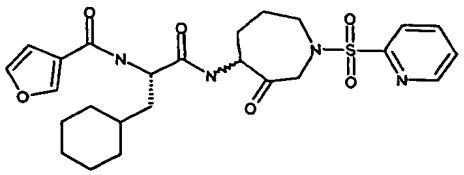
cyclopentanecarboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



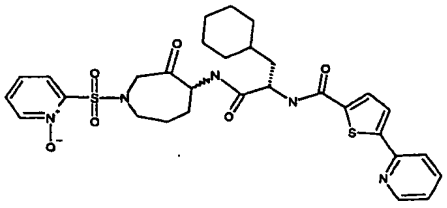
(S)-tetrahydro-furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



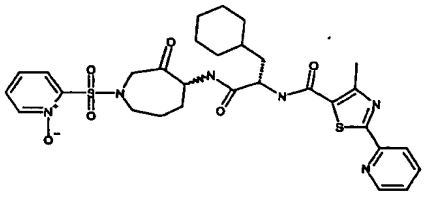
(R)-tetrahydro-furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



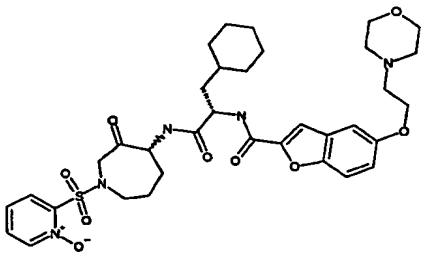
furan-3-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



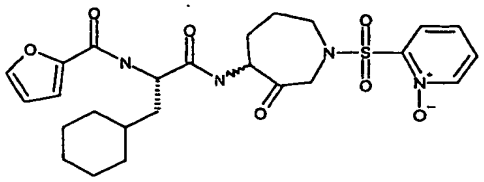
5-pyridin-2-yl-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



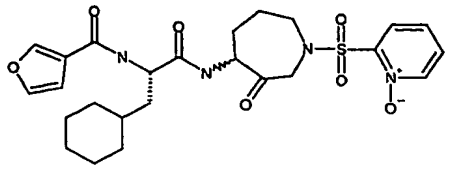
4-methyl-2-pyridin-2-yl-thiazole-5-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



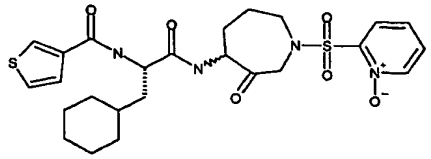
5-(2-morpholin-4-yl-ethoxy)-benzofuran-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



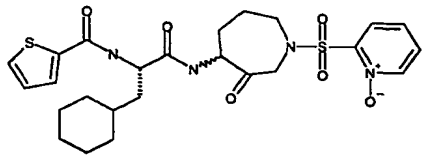
furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



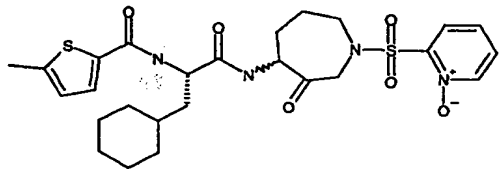
furan-3-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



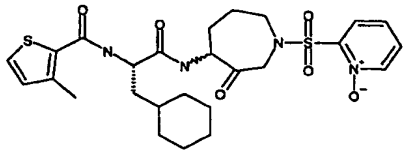
thiophene-3-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



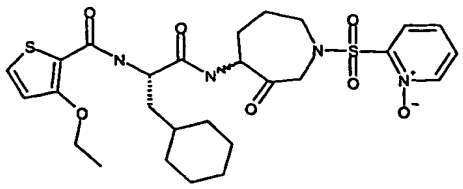
thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



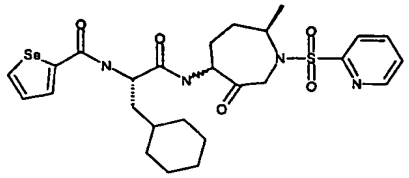
5-methyl-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



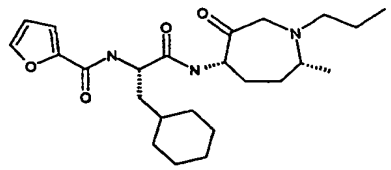
3-methyl-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



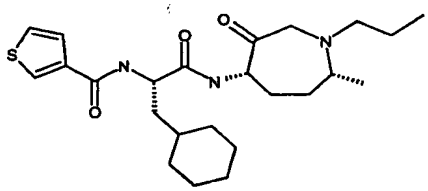
3-ethoxy-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



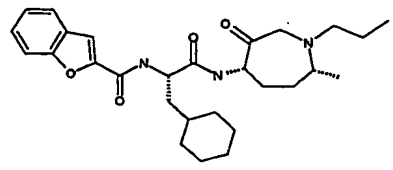
selenophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[(R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



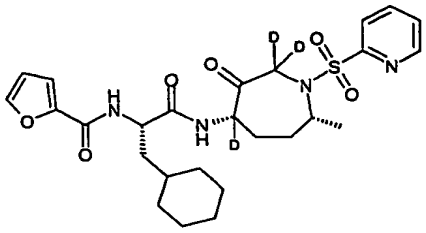
furan-2-carboxylic acid [(S)-2-cyclohexyl-1-((4S,7R)-7-methyl-3-oxo-1-propyl-azepan-4-ylcarbamoyl)-ethyl]-amide;



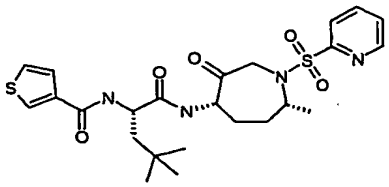
thiophene-3-carboxylic acid [(S)-2-cyclohexyl-1-((4S,7R)-7-methyl-3-oxo-1-propyl-azepan-4-ylcarbamoyl)-ethyl]-amide;



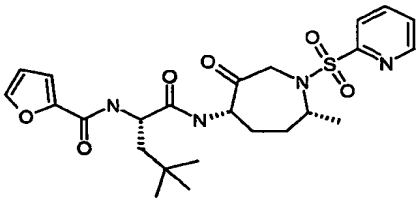
benzofuran-2-carboxylic acid [(S)-2-cyclohexyl-1-((4S,7R)-7-methyl-3-oxo-1-propyl-azepan-4-ylcarbamoyl)-ethyl]-amide;



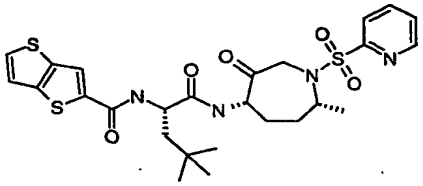
2,2,4-trideutero-Furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[(4S,7R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



thiophene-3-carboxylic acid {(S)-3,3-dimethyl-1-[(4S,7R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-butyl}-amide;

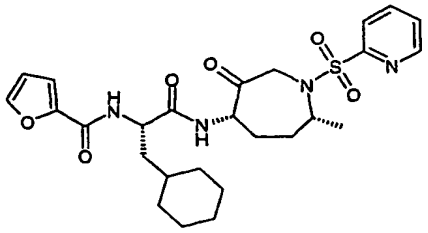


furan-2-carboxylic acid {(S)-3,3-dimethyl-1-[(4S,7R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-butyl}-amide; and

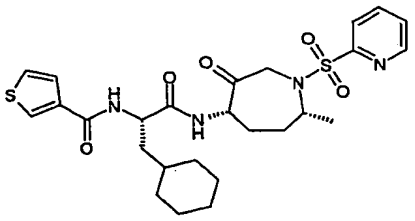


thieno[3,2-b] thiophene-2-carboxylic acid {(S)-3,3-dimethyl-1-[(4S,7R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-butyl}-amide.

35. A compound according to Claim 34 selected from the group consisting of:

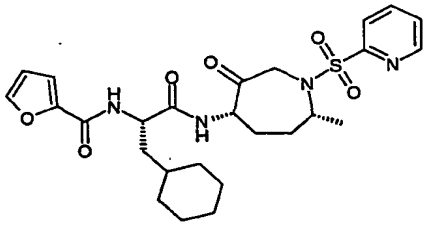


furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[(4S,7R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide; and



thiophene-3-carboxylic acid {(S)-2-cyclohexyl-1-[(4S,7R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide.

36. A compound according to Claim 35 which is:



furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[(4S,7R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide.

37. A method of treatment and prevention of an autoimmune disease comprising inhibiting overexpression of cathepsin S by administering to a patient in need thereof an effective amount of a compound according to any one of Claims 1 to 36.

38. A method according to Claim 37 wherein said disease is selected from the group consisting of : rheumatoid arthritis, multiple sclerosis, juvenile-onset diabetes, sytemic lupus erythematosus, discoid lupus erythematosus, pemphigus vulgaris, pemphigoid, Grave's disease, myasthenia gravis, Hashimoto's thyroiditis, scleroderma, dermatomysositis,

Addison's disease, pernicious anemia, primary myxoedema, thyrotoxicosis, autoimmune atrophic gastritis, stiff-man syndrome, Goodpasture's syndrome, sympathetic opthalamia, phacogenic uveitis, autoimmune haemolytic anaemia, idiopathic thrombocytopenic purpura, idiopathic leucopenia, primary biliary cirrhosis, active chronic hepatitis, cryptogenic cirrhosis, ulcerative colitis, Sjogren's syndrome, and mixed connective tissue diease.

39. A method of treatment or prevention of a disease state caused by the formation or complications of atherosclerotic lesions comprising inhibiting formation of said lesions or complications thereof by administering to a patient in need thereof an effective amount of a compound according to any one of Claims 1 to 36.

40. A method of treatment of a disease which requires for therapy inhibition of a class II MHC-restricted immune response, comprising inhibiting said class II MHC-restricted immune response by administering to a patient in need thereof an effective amount of a compound according to any one of Claims 1 to 36.

41. A method of treatment of a disease which requires for therapy inhibition of an asthmatic response, comprising inhibiting said asthmatic response by administering to a patient in need thereof an effective amount of a compound according to any one of Claims 1 to 36.

42. A method of treatment of a disease which requires for therapy inhibition of an allergic response, comprising inhibiting said allergic response by administering to a patient in need thereof an effective amount of a compound according to any one of Claims 1 to 36.

43. A method of treatment of a disease which requires for therapy inhibition of an immune response against a transplanted organ or tissue, comprising inhibiting said immune response against a transplanted organ or tissue by administering to a patient in need thereof an effective amount of a compound according to any one of Claims 1 to 36.

44. A method of treatment of a disease which requires for therapy inhibition of elastase activity in atheroma, comprising inhibiting said elastase activity in atheroma by administering to a patient in need thereof an effective amount of a compound according to any one of Claims 1 to 36.

45. Use of a compound according to any one of Claims 1 to 36 in the manufacture of a medicament for use in inhibiting cathepsin S.

46. Use of a compound according to any one of Claims 1 to 36 in the manufacture of a medicament for use in treatment and prevention of an autoimmune disease.

47. A use according to Claim 46 wherein said disease is selected from the group consisting of: rheumatoid arthritis, multiple sclerosis, juvenile-onset diabetes, sytemic lupus erythematosus, discoid lupus erythematosus, pemphigus vulgaris, pemphigoid, Grave's disease, myasthenia gravis, Hashimoto's thyroiditis, scleroderma, dermatomysositis, Addison's disease, pernicious anemia, primary myxoedema, thyrotoxicosis, autoimmune atrophic gastritis, stiff-man syndrome, Goodpasture's syndrome, sympathetic opthalamia, phacogenic uveitis, autoimmune haemolytic anaemia, idiopathic thrombocytopenic purpura, idiopathic leucopenia, primary biliary cirrhosis, active chronic hepatitis, cryptogenic cirrhosis, ulcerative colitis, Sjogren's syndrome, and mixed connective tissue diease.

48. Use of a compound according to any one of Claims 1 to 36 in the manufacture of a medicament for use in treatment or prevention of a disease state caused by the formation or complications of atherosclerotic lesions.

49. Use of a compound according to any one of Claims 1 to 36 in the manufacture of a medicament for use in treatment of a disease which requires for therapy inhibition of a class II MHC-restricted immune response.

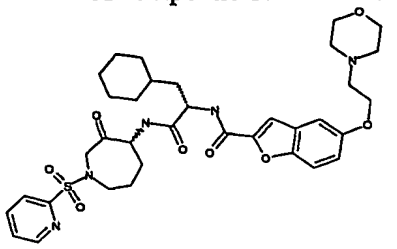
50. Use of a compound according to any one of Claims 1 to 36 in the manufacture of a medicament for use in inhibition of an asthmatic response.

51. Use of a compound according to any one of Claims 1 to 36 in the manufacture of a medicament for use in inhibition of an allergic response.

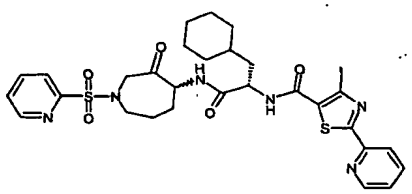
52. Use of a compound according to any one of Claims 1 to 36 in the manufacture of a medicament for use in inhibition of an immune response against a transplanted organ or tissue.

53. Use of a compound according to any one of Claims 1 to 36 in the manufacture of a medicament for use in inhibition of elastase activity in atheroma.

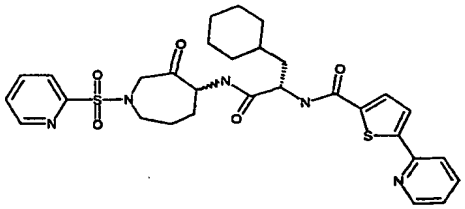
54. A compound selected from the group consisting of:



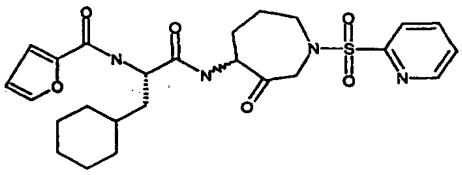
5-(2-morpholin-4-yl-ethoxy)-benzofuran-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



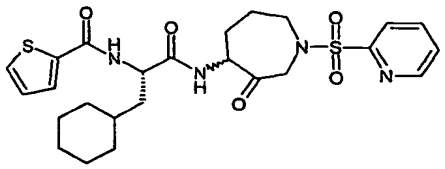
4-methyl-2-pyridin-2-yl-thiazole-5-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



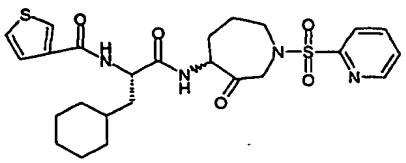
5-pyridin-2-yl-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



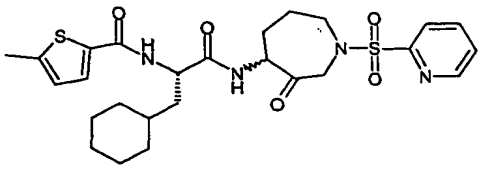
furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



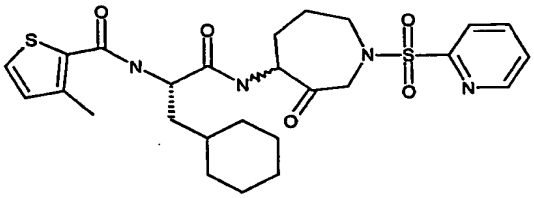
thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl] -ethyl}-amide;



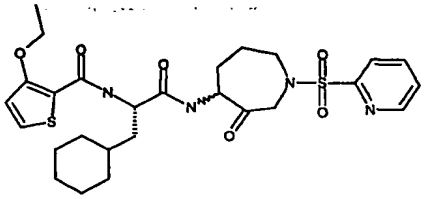
thiophene-3-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl] -ethyl}-amide;



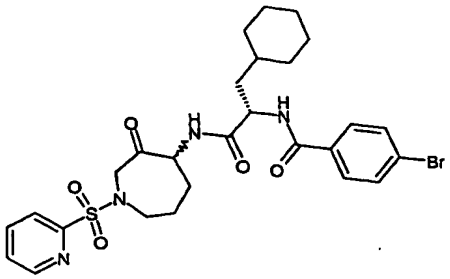
5-methyl-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



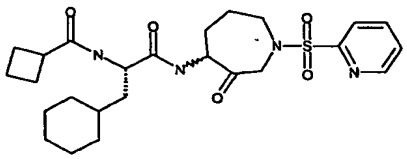
3-methyl-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



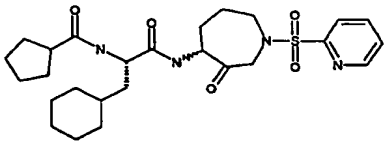
3-ethoxy-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



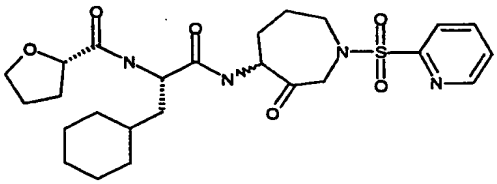
4-bromo-N-{(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-benzamide;



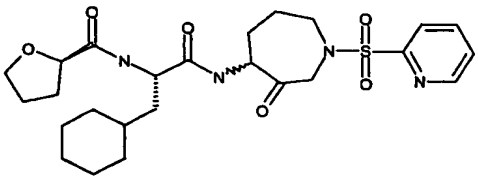
cyclobutanecarboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



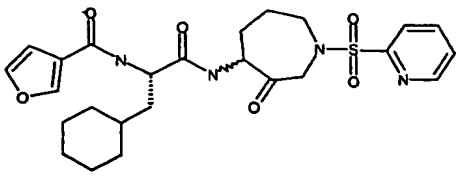
cyclopentanecarboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



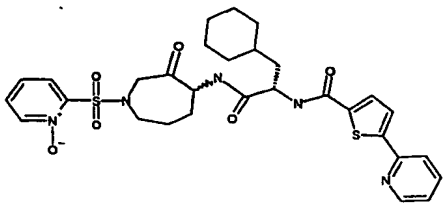
(S)-tetrahydro-furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



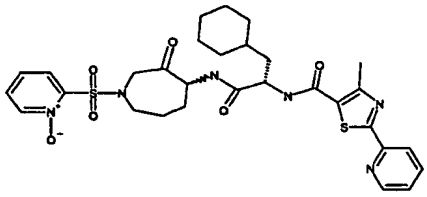
(R)-tetrahydro-furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



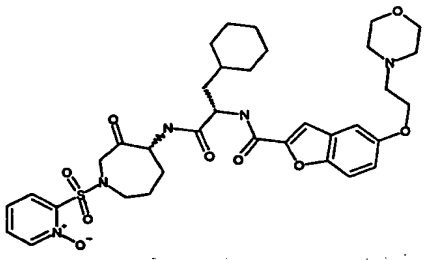
furan-3-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



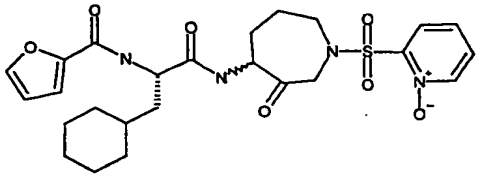
5-pyridin-2-yl-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



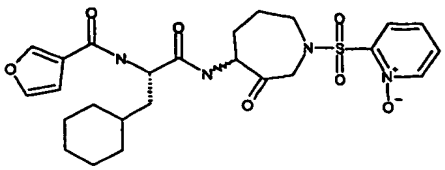
4-methyl-2-pyridin-2-yl-thiazole-5-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



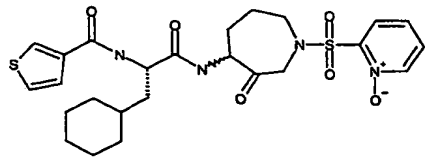
5-(2-morpholin-4-yl-ethoxy)-benzofuran-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



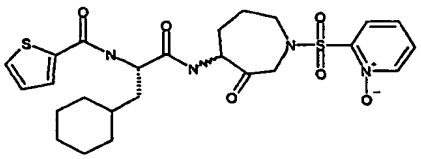
furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



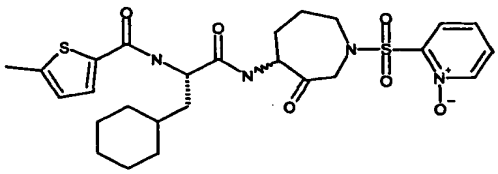
furan-3-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



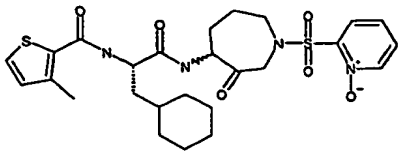
thiophene-3-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



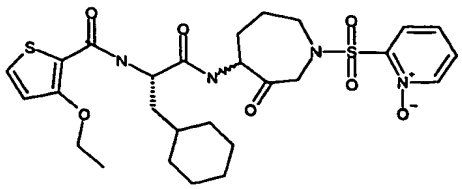
thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



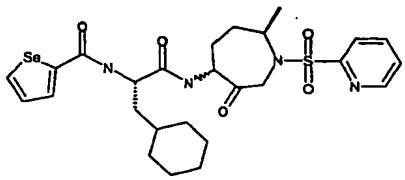
5-methyl-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



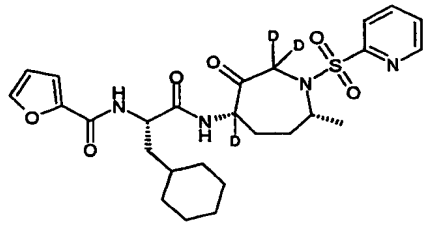
3-methyl-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



3-ethoxy-thiophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[3-oxo-1-(1-oxy-pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide;



selenophene-2-carboxylic acid {(S)-2-cyclohexyl-1-[(R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide; and



2,2,4-trideutero-Furan-2-carboxylic acid {(S)-2-cyclohexyl-1-[(4S,7R)-7-methyl-3-oxo-1-(pyridine-2-sulfonyl)-azepan-4-ylcarbamoyl]-ethyl}-amide.